Remarks/Arguments

Priority

Applicant had filed a preliminary amendment on September 29 to contain a specific reference to the prior applications. This amendment appears not to have been entered. Applicant has made the amendment again in this present response.

Item 1 – Specification

Applicant has amended the application to include references to granted patent applications, and to correct other minor typographical errors.

Item 2 – Objection under 37 CFR 1.71

Examiner is of the opinion that the disclosure is "so incomprehensible as to preclude a reasonable search of the prior art", and has objected to the disclosure under 37 CFR 1.71.

However, an International Search Report was conducted by Examiner Bentsu RO on 24 July 2003, and an International Preliminary Examination Report was also conducted by Examiner RO on 26 November 2003. There was no indication that Examiner RO found the "disclosure as being so incomprehensible as to preclude a reasonable search of the prior art".

Indeed, Examiner RO found that the present application met the requirements of Article 35(2) of the PCT in regard to Novelty, Inventive Step and Industrial Applicability. Applicant is therefore surprised that Examiner was unable to understand the disclosure, and attempts to address his comments (*italicized*) in the following:

"*The specification discloses three phase machines design with the idealized winding sinusoidal distribution...*" The material relating to three-phase machines and idealized sinusoidally distributed windings is very much part of the Background Art section. Note that is the windings that are distributed, and that the ideal distribution is a sinusoidal one, and this is explained clearly in paragraphs 5 thru 8.

"*... or cyclic sinc winding distribution with a cutoff at certain harmonic with respect to the turns of the windings or slots.*" Distributing the windings according to the sinc function, or cyclic sinc function (rather than according to the sine function as described immediately above) is a feature

of the present invention, and is disclosed clearly in paragraph 19. Applicant respectfully draws Examiner's attention to paragraphs 5 thru 8, which explain why windings are distributed in a three phase machine, and to paragraph 11, which explains why temporal harmonics are not filtered out by the sinusoidal distribution. In other words, the windings themselves behave as a filter, and the behavior of the filter is dependent on how the "*turns of the windings or slots*" are distributed around the stator.

"*The specification also discloses the desired reconstruction filter thus be a low pass filter in order to determine the winding distribution. The specification fails to define any structure or low pass filter circuit or any physical three phase motor structure as a result of the cyclic sinc winding distribution function*" First, Examiner should note that the three-phase material in the present application relates to the Background Art. Secondly, as alluded to above, the windings themselves behave as a filter, and the behavior of the filter is dependent on how the windings are distributed around the stator. Thus the specification does define a structure or filter circuit: it is the winding themselves. This is abundantly clear throughout the present specification (see especially paragraphs 50 – 58).

"*The specification fails to define any multiple phase motor structure other than a multiple phase electrical machine being used with a low pass reconstruction filter to determine the winding distribution at different harmonics with different cutoff frequencies. For examples,pages 12 and 13 present different embodiments with different phases electrical rotating machines and the electrical rotating machines are connected with different mesh connection to inverter drives or inverter logic circuits without any specific structure or circuit provided or shown in the drawings of the invention.*" Once again, Examiner should note that the windings are not used *with* a filter; the windings *are* the filter and the behavior of the filter is dependent on how the windings are distributed around the stator.

"*The specification also fails to clearly define different embodiments of the structure or method considered as the invention. The specification fails to clearly define whether the winding distribution forms a low pass filter to produce the cutoff harmonic, or a low pass filter circuit is connected to the winding distribution to cutoff harmonic according to the sinc function.*" As

indicated above, the specification clearly defines that the windings form a filter, and that the behavior of the filter depends on the winding distribution. Examiner should also note that the filter does not produce a cutoff harmonic (Applicant is unclear what a cutoff harmonic is), and nowhere is this taught in the specification. Instead, the arrangement of the windings around the stator either allows or prevents certain frequencies to pass into the machine.

"*Furthermore, there is no electrical circuit of any form recited in the specification in order to generate sinusoidal function or sinc function as disclosed in the specification. The specification is presented in such a way as a test report for a three phase induction motor at different harmonics with different winding distributions at the used sinc function. The specification fails to define any circuit or structure of the invention according to the sinc function.*" There is no requirement in the specification to generate sinusoidal function or sinc function. As indicated above, the specification clearly defines that the windings form a filter, and that the behavior of the filter depends on the winding distribution. Further circuits are not required.

Applicant believes the specification to clearly state the present invention, and respectfully requests that Examiner withdraw his objection to the specification under 37 CFR 1.71.

Items 3 and 4 – Claims rejection under 35 USC 112 second paragraph

Examiner states that claims 1-23 are rejected under 35 USC 112 second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as invention.

Applicant has cancelled claims 13 and 23, and amended the remaining claims to particularly point out and distinctly claim the subject matter which applicant regards as invention.

In particular, claims 1 and 7 as amended make it clear that the present invention is directed towards a high phase order rotating induction machine, in which the number of phases is greater than three, and which comprises a stator having windings for each of the phases, and where the windings are distributed according to a sinc function or a cyclic sinc function.

Accordingly, Applicant respectfully requests Examiner withdraw the rejection of claims 1-12, and 14-22 under 35 USC 112 second paragraph.

Item 5, 6 and 7 – Claims rejection under 35 USC 103(a)

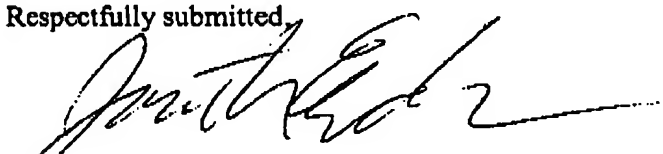
Examiner states that claims 1-23 are rejected under 35 USC 103(a) as being unpatentable over Auinger (US4,751,448) in view of Woodson et al (US5,189,357) or Hsu et al (5,019,766).

Examiner states that the patent to Auinger has claims that recite a winding distribution according to the sinc function. Applicant can find no reference to the sinc function in the disclosure of Auinger. Instead claims 1 and 5 recite that the phase winding sections are spatially distributed evenly, i.e. not according to a sinc function.

Applicant believes that the prior art does not teach or fairly suggest a high phase motor in which the distribution of the windings is in accordance with the sinc, or cyclic sinc, function, and respectfully requests Examiner withdraws the rejection of the claims under 35 USC 103(a).

Applicant respectfully submits that this application, as amended, is in condition for allowance, and such disposition is earnestly solicited. If the Examiner believes that discussing the application the Applicant over the telephone might advance prosecution, Applicant would welcome the opportunity to do so.

Respectfully submitted,



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